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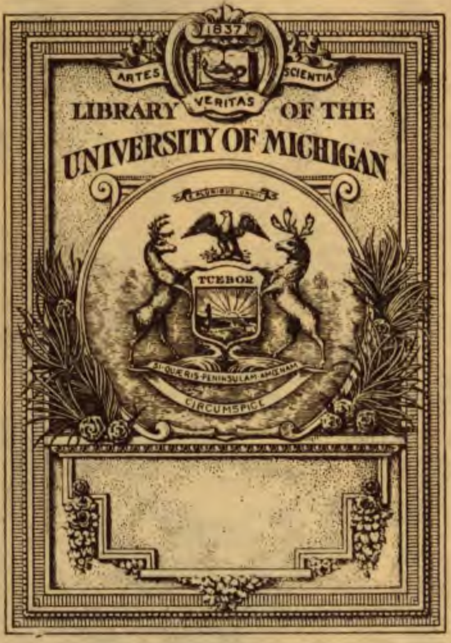
Fortifications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FORTIFICATIONS

PREPARED BY THE WAR COLLEGE DIVISION, GENERAL STAFF CORPS
AS A SUPPLEMENT TO THE STATEMENT OF A PROPER MILITARY
POLICY FOR THE UNITED STATES

WCD 4896–4

ARMY WAR COLLEGE : WASHINGTON
NOVEMBER, 1915

U. S. General staff. War plans division

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

518

War Department,
Document No. 513.
Office of the Chief of Staff.

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FORTIFICATIONS.

I. INTRODUCTION.

In a memorandum from the Chief of Staff dated November 15, 1915, directions were given for the preparation of a brochure upon the subject of "Fortifications," with sole reference to the present European war, giving especial attention to the following points:

(*a*) What influence forts and fortified cities, as distinguished from intrenched areas, have exerted on the operations on land.

(*b*) Influence of seacoast fortifications with particular reference to the attack of the allied fleet against the fortifications of the Dardanelles. Give in detail the total armament, with calibers of arms of the fleet as well as of the land forts, and the losses in personnel and material suffered by both fleets and forts.

(*c*) A brief summary of the attempt to take these forts by the operation of the mobile troops; the number of mobile troops, as near as can be determined, used to date, both in the attack and in the defense, with total losses.

This has been done as far as practicable with the data now available, and the results are noted in the following paragraphs:

1. INFLUENCE OF FORTS AND FORTIFIED CITIES, AS DISTINGUISHED FROM INTRENCHED AREAS, UPON OPERATIONS ON LAND.

FORTIFICATIONS OF LIEGE.

At the outbreak of the present European war the Germans, in their march through Belgium, were, on the evening of August 4, 1914, closing in on Liege, which lies astride the Meuse River near the eastern boundary of Belgium. The fortifications of Liege had been constructed by Brialment, a Belgian officer, who also designed the fortifications of Namur and Antwerp. They were completed in 1892, and consisted of a circle of forts commanding the main approaches to the city and about 4 miles therefrom. There were six main forts of the pentagonal type and six smaller, triangular in shape; the greatest distance between forts was 7,000 yards, and the average less than 4,000 yards. Each fort had a garrison of about 80 men and an armament of two 6-inch guns, four 4.7-inch guns, two 8-inch mortars, and three or four quick-fire guns, the total number of guns in the 12 forts being about 400. It was intended to construct [illegible] attack [illegible] hours. [illegible] the [illegible] was [illegible] struck by [illegible] as with the [illegible] to complete the [illegible]

Other fortified places, such as Lille, Laon, La Fere, and Rheims, along the northeastern French boundary fell before the advancing Germans without striking a blow. The advance was on such a broad front that an attempt at defense would have endangered the safety of the garrisons, and it was imperative that the garrisons join the field army. By August 28 Mauberge of all the northern strongholds alone held out. The defenses had been brought to a high state of efficiency, the intervals well prepared with an armored train running on a track encircling the main line of defenses. The German infantry invested the place August 27, but the siege guns did not go into action until September 3. The place fell September 8 with a loss of 40,000 men.

ANTWERP.

Antwerp, said to be the second most strongly fortified city of Europe, encircled by a girdle of 20 permanent forts and 12 earthen redoubts, was in similar manner quickly reduced by the heavy siege guns. The garrison, beginning to profit by the lessons learned at Liege and Namur, attempted to keep the enemy's big howitzers beyond range of the forts, but were driven back by the superior numbers of the Germans, whose siege guns were then brought up and quickly demolished the masonry forts. Thus the garrison was deprived of any further assistance from its larger guns and, being but poorly entrenched and unable to withstand the overwhelming artillery fire, was forced back to the inner line, thereby permitting the siege guns to come within range of the city, which had therefore to be abandoned promptly in order to prevent its destruction by bombardment.

VERDUN.

Verdun, however, on the eastern French frontier, with a ring of forts 5 miles from the city, is still in the hands of the French, because with a field army employing earthworks the fortified zone has been largely extended and the German howitzers have been kept 6 miles from the forts. The unfortified city of Nancy has withstood several heavy attacks, being protected by a field army on the hills forming the "Grand Crown."

PRZEMYSL AND THE RUSSIAN FORTIFICATIONS.

The Russians invested the fortress of Przemysl on September 22, 1914, but later the siege was raised and on November 12 it was invested a second time. As the Russians had no heavy siege guns, the siege resulted in an attempt to starve out the garrison, which ceeded March 22, 1915. With the return of the Teutonic allies in May, 20 days was sufficient to recapture the place. The Russians stated that their ammunition supply was low, but it is safe to assume that the presence of the heavy siege guns with the Germans had a great deal to do with the recapture.

The fortresses guarding Warsaw and the Russian frontier on the west were quickly taken during the advance of the Teutonic allies in the summer of 1915, either by maneuvering the defenders out of them or by bringing up the heavy guns and shattering the fortifications, as at Novo Georgievsk. The fortress of Ossowetz on the line Niemen-Bobr-Narew had a different history. In February, 1915, the Russians fell back across the Bobr River to the protection of Ossowetz, which stood on the east bank along a long ridge covered with woods, affording good artillery positions, and commanding the opposite bank, where artillery positions were poor. There were extensive marshes along the river, but at this time of the year they were frozen. The Germans at first tried to turn the position, but failing, brought up their heavy mortars, even the 42-centimeter howitzer. The Russian batteries were so well concealed that the Germans could not locate them and their big guns did no damage. The Russians silenced several batteries without suffering from their fire. As the warm weather advanced, the marshes made it difficult to emplace the heavy guns. Ossowetz did not fall until August 22 in the general Russian retreat after the capture of Warsaw.

THE FORTIFIED CITY OF THE FUTURE.

The failure of the forts in the present war is due to several causes:

First. Being built some years before the war, their position was accurately known to the enemy, thus losing the advantage of concealment; also, the details of their construction leaked out and guns were especially designed to destroy them.

Second. Their armament had not been kept up to date and was entirely overpowered by guns of recent construction and of a type unknown to the defense.

Third. The garrisons permitted the enemy to emplace his guns within their effective range, but beyond range of the forts' guns.

The favorable effect of concealment, as a defensive measure, is illustrated by the operations against Ossowetz, and that of keeping th[illegible] a distance by the operations against Verdun.

[illegible]nces of this war confirm the conclusion reached during [illegible]rt Arthur in 1904, "that the mounting of large-caliber [illegible] for use against the siege guns of the enemy is a fatal error." It would therefore seem preferable to place the fixed heavy guns in emplacements located in rear of the line of forts, depending for protection upon concealment rather than masonry or other cover. The forts themselves, whether permanent or improvised after the outbreak of war, should be designed for an infantry garrison only, and the main line of defense should consist of a continuous system of infantry entrenchments (including machine-gun emplacements), located in advance of the line of forts. These latter would serve mainly as supporting points for organizing a counter attack in case the front were penetrated.

To check the enemy's advance before his heaviest guns have reached points within effective range of the city, naval base, or other vital object to be protected, a garrison sufficiently strong to operate well in advance of the forts, is indispensable, and its action should be assisted by long-range fire from the fixed armament, which should be superior in caliber and range to the guns usually supplied to an army in the field.

The guns of the fortress, both fixed and mobile, should be distributed over a large area and advantage taken of the terrain to secure concealment, which must be had at any price. It is important to bear in mind that the number of guns permanently emplaced should be comparatively small compared with the total heavy armament of the fortress, or, in other words, the main reliance will be placed on the mobile guns, some of which should be at least as powerful as any the enemy can bring against them.

The fortress of the future should consist of a large area so organized as to insure extreme mobility both to troops and guns. There will be no conspicuous forts of masonry and armor. Permanent gun emplacements should be constructed only at important points with the primary intention of compelling the enemy to lose time in bringing up his heaviest siege guns. The mobile guns would be located in earthen emplacements well concealed from the enemy's observers who might endeavor to direct fire on them. The point to be emphasized is that unless the garrison be strong enough in both mobile troops and mobile guns to keep the enemy from breaking through the line or coming within effective range of the city proper or other vital point or object to be protected, then there is no hope of offering a prolonged resistance.

In view of the foregoing it is apparent that intrenched areas with mobile troops and guns are a more dependable protection than a stereotyped system of permanent forts.

2. INFLUENCE OF SEACOAST FORTIFICATIONS, WITH PARTICULAR REFERENCE TO THE ATTACK BY ALLIED FLEET ON DARDANELLES FORTIFICATIONS.

DESCRIPTION OF THE DARDANELLES.

The western approach to the city of Constantinople from the Aegean Sea is through the Dardanelles and the Sea of Marmora. The Dardanelles (ancient Hellespont) is a long winding channel, 47 miles in length, but the really narrow portion, extending from the Aegean Sea to the town of Gallipoli, represents a sea passage of about 33 miles. The passage is at no point wider than 7,000 yards, and at one point, the Narrows, 14 miles from the entrance, it contracts to 1,400 yards. The surface current flows westward into the Aegean at an average speed of 1½ knots, which is sometimes trebled in the Narrows after strong northerly winds. The depth in mid-channel varies from 25 to 55 fathoms, and there are shallows at some of the bays in the wider sections. Owing to the narrowness, the strong current, and the cross currents set up at some of the bays, maneuvering of large vessels is difficult. The weather is treacherous and uncertain; the prevailing winds for nine months of the year are northeasterly, but south winds spring up quickly, and blows last from three to five days. Unfavorable weather and frequent haze and mist were encountered during the earlier stages of the naval operations.

The long narrow tongue of land to the north is the Gallipoli Peninsula. It has its greatest width, 12 miles, just above the Narrows or opposite Suvla Bay; it is narrowest at Bulair, 3 miles; at the Narrows the width is 5 miles. Ships can therefore lie in the Gulf of Saros and fire across the peninsula. The Asiatic shore of the Dardanelles is lower than the European. The hills are low and wooded, while on the peninsula they are bare and rocky cliffs. On both shores there are heights which give advantage to defensive artillery and at the Narrows both shores tower above the ships.

FORTIFICATIONS OF THE DARDANELLES.

d fortifications were the "Dardanelles Castles"; the
"Old Castles," at the Narrows, were built by the
nmed II, the conqueror of Constantinople, in 1462;
e, the "New Castles," were built in 1659. At
at Britain new fortifications were built in the
and 1877. After the peace of San Stefano in
gned new fortifications and all the new fortifi-
th Krupp guns.

From the best obtainable information, in the spring of 1915 the armament was as follows: At the entrance between the towns of Seddel-Bahr near Cape Helles on the Europeon side, and Kum Kale on the Asiatic side, there were four forts or batteries, two on each side, with an armament of ten 10.2-inch guns, four 9.2-inch guns, and two 6-inch guns.

Proceeding towards the Narrows, there were on the Asiatic side fortifications on Dardanes Hill, 4 miles south of the Narrows, and two forts at the Narrows near the town of Chanak—the whole mounting an armament of four 14-inch guns, six 10.2-inch guns, one 8.3-inch howitzer, and nine 6-inch guns. On the European side there were three batteries south of the town of Kilid Bahr at the Narrows, and a number of batteries on the hills around Kilid Bahr, the total armament being four 14-inch guns, one 11-inch gun, eight 10.2-inch guns, fourteen 9.2-inch guns, fifteen 8.3-inch howitzers, and twenty-four 6-inch guns. The armament between the entrance and the Narrows thus amounted to eight 14-inch guns, one 11-inch gun, fourteen 10.2-inch guns, fourteen 9.2-inch guns, fourteen 8.3-inch howitzers, and thirty-three 6-inch guns.

The fortifications extended 4 miles farther north to the line through Nagara, beyond which the Dardanelles turns to the northeast and broadens out. The armament on both sides amounted to two 14-inch guns, five 10.2-inch guns, five 9.2-inch guns, eight 8.3-inch howitzers, and fifteen 6-inch guns, all except six 6-inch guns being on the Asiatic side.

In addition to the above there were smaller guns to protect mine fields.

From an examination of the chart, it seems that a hostile fleet, after silencing the guns at the entrance and proceeding towards the Narrows, would be subject to the fire of the following guns when it had reached a point 4 miles from the Narrows: ten 14-inch guns, eighteen 10.2-inch guns, eight 9.2-inch guns, twenty-one 8.3-inch howitzers, and thirty-seven 6-inch guns.

(*a*) Power of the guns:

The guns in the batteries vary greatly; alongside old guns are guns of very great power. The heaviest gun, of which there were 10, the 14-inch Krupp, with a projectile weighing 1,365 pounds, appears superior to our 14-inch seacoast gun with its 1,600-pound projectile, as it has a reported penetration in Krupp hardened steel armor at 8,000 meters of 20 inches, while our gun has 16.3 inches. Its life, however, is limited to 80 or 90 rounds, and hence it is probably not as accurate as ours after firing a number of shots.

The next heaviest gun is the 11-inch, but there was only one of that caliber. Then comes the 10.2-inch, of which there were 29, a gun manufactured some years ago by the Krupps. It is not as powerful as our 10-inch gun; its projectile weighs 450 pounds, as against our 575 pounds, and its penetration at 3,000 meters is 6 inches, while our gun penetrates 9.3 inches at 8,000 meters. The other heavy-caliber gun is 9.2 inches, of which there were 25, with a projectile weighing 420 pounds, and still more inferior to our 10-inch gun.

It is believed that Krupp guns of later pattern were mounted after the outbreak of hostilities in 1914, and it seems to be certain that heavy mobile howitzers or mortars were used against the allies.

(*b*) Character of the batteries:

The batteries were built with great care, but groups were formed of different calibers and types, which rendered serving them difficult and slow in action. The emplacements are of concrete and steel with earthen cover, with guns in embrasures rather than in turrets. There was a modern system of searchlights, telephones, and range finders, and good communication by roads. They were generally invisible from the sea, but their positions were detected by the stone barracks, which were usually close behind them and in full view of passing ships.

One of the batteries was manned entirely by Germans, but the others had Turkish crews that had been drilled by German officers. The movable howitzer batteries appeared to have had German coast artillerymen with German naval officers in command.

REDUCTION OF THE FORTS AT THE ENTRANCE.

On November 3, 1914, the allied fleet bombarded the forts at the entrance, but the real operations began February 19, 1915, with a fleet of British battleships and cruisers, aided by a strong French squadron. The attack was at first at long range, to which the forts could not reply, being outranged. In the afternoon the ships closed in and opened fire with the secondary batteries; the forts returned the fire. The forts on the European side were apparently silenced; one on the Asiatic side continued firing. The damage was subsequently found to be comparatively small and many of the guns were still intact. Eight battleships were engaged with a total of 46 guns of major caliber, 30 being 12-inch, and 58 guns of minor caliber from 7.5-inch to 4-inch. The shore guns were ten 10.2-inch, six 9.2-inch, and two 6-inch. No ship was hit. In general the guns were mounted in open works near the old masonry castles, with the sea faces protected by earth.

ion against these forts continued until February 25, when the
f all four was completed. In the meantime the new bat-
Queen Elizabeth, with eight 15-inch guns and twelve
s, had arrived, giving the allies 16 armored ships of

the line, 12 British and 4 French. The British casualties had been three killed and five wounded. Landing parties had been sent ashore as quickly as possible to complete the work of destruction, but were driven back by the Turks before completing the job. It was reported by the British that all forts were completely demolished with the exception of one at Kum Kale.

OPERATIONS AGAINST THE FORTS AT THE NARROWS.

Sweeping operations to clear the channel of mines and obstructions began February 25, and on March 1 three ships entered the strait and attacked Fort Dardanes with its five 6-inch guns in rectangular turrets on the military crest of a hill 350 feet high; these were said to be the only Turkish guns with telescopic sights. Sweeping operations and the attack on Fort Dardanes with its outlying smaller batteries continued until March 5, the French division and the *Queen Elizabeth* using indirect fire from the Gulf of Saros on the forts at Kilid Bahr at the Narrows. An aeroplane ship with sea planes and aeroplanes accompanied the fleet. But not a shot hit the forts during the indirect bombardment; according to the Turks, the aeroplanes did not remain long enough in the air to direct the fire. On March 8 the *Queen Elizabeth* entered the strait and fired on Kilid Bahr at 21,000 yards range. This long-range bombardment of the forts at the Narrows and closer action by the other ships against the batteries south of the Narrows, together with mine sweeping, continued until March 18. The ships were hit several times, including the *Queen Elizabeth*, which was struck by field guns, but no material damage was done and the casualties were slight. Fort Dardanes and other concealed batteries near by were almost daily under the fire of from four or five ships, sixteen 12-inch guns and forty-eight 6-inch guns being used against five 6-inch guns. No battery on the Turkish side was put permanently out of action. The Turkish casualties, omitting those in the forts at the entrance, which were heavy, were 23 killed and 10 wounded.

FINAL ATTACK OF MARCH 18.

On March 18 there was a general attack on the Narrows, participated in by 12 British and 4 French ships, mounting a total of 82 major caliber guns from 15-inch to 9.2-inch, and 178 minor caliber guns from 7.5-inch to 4-inch. As stated in paragraph 2, subparagraph 2, "Fortifications of the Dardanelles," pages 4 and 5, the number of guns that the Turks could bring into action against this fleet was 36 major caliber direct-fire guns and 21 howitzers, a total of 57, and 37 minor caliber guns. In addition there were fieldpiece and movable heavy howitzers, the number being indeterminate. In the forenoon the *Queen Elizabeth*, just inside the entrance, 10½ miles from the Narrows, and three older British ships bombarded the forts at the Narrows, while two other British ships at closer range attacked Dardanes and the batteries south of the Narrows. Shortly after noon the French division of four ships advanced to the support of these two ships, taking up a position near Kephez Point, 3 miles south of the Narrows. A heavy fire was now returned by the forts, but as the ships were maneuvering in circles, few hits were made. The 10 ships that were engaged at this time mounted 58 major caliber guns. At 1.25 p. m. the forts ceased firing. A fresh British squadron of six ships now arrived to relieve a corresponding number of ships well within the strait. As this squadron neared Kephez Point, the other ships turned to withdraw when the French ship, *Bouvet*, was struck several times and blew up, the cause of the explosion probably being a drifting mine. The new squadron continued the advance, attacking in line; the ships just within the entrance continued the bombardment, but it was manifest that the forts had not been silenced. Mine sweeping operations continued, but drifting mines sunk the British ships *Irresistible* and *Ocean*, and a mine and gunfire so badly damaged the *Inflexible* that it with difficulty reached the harbor of Mudros, 40 miles away. The French ship *Gaulois* was also badly damaged by gunfire. The attack ceased when darkness fell.

The attack had been badly repulsed and was not again renewed. The British casualties were slight, 61 all told, practically all the crew from the *Irresistible* and *Ocean* being saved; but the French lost nearly the entire crew of the *Bouvet*. The Turks lost 23 killed and 60 wounded. The 6-inch guns in the turrets at Dardanes, which had received such a heavy fire, were not damaged; the turrets were hit only three times. On the European side three 10-inch guns were put out of action, but three weeks later all were ready again. The stone barracks in rear of the batteries were destroyed; 86 shells fell in a space 300 feet deep in rear of one battery, but the battery was untouched. The shells easily penetrated earth, but not one passed through sand parapets. After March 18, the Turks substituted sand for earth to a large degree in the parapets and divided up the large interior rooms of the batteries into smaller ones by hollow walls filled with sand.

EFFICIENCY OF SEACOAST FORTIFICATIONS.

rations in the Dardanelles have been the only instance in
a naval attack on seacoast fortifications, except the minor
Japanese Navy against the German fortifications at
where, by virtue of their existence, they have per-

formed their functions of protecting harbors, fleets, and naval bases. The German fleet, under the protection of the shore guns, has maintained its existence in spite of the proximity of the superior British fleet.

These operations have emphasized the fact that has been thoroughly demonstrated by history that a purely naval attack can not succeed against seacoast fortifications adequately armed and manned, and that in such actions the proper function of the navy is to convoy the army, which will make the attack by land, and to protect its line of communications.

REQUISITES FOR SUCCESSFUL DEFENSE.

The forts at the entrance fell and those in the Narrows were scarcely damaged, though in both cases there was an overwhelming fire from the ships. The difference in the two cases is this: At the entrance the guns were outranged and the ships had plenty of sea room in which to maneuver and bring the heavy guns to bear, free from danger of mines; in the narrow mined channel of the Narrows, with both shores lined with guns, some of them equal or nearly so to the heaviest ship gun, the ships had to come within range and could attack with only a portion of the force. In such a position, a fleet, exposed to fixed and floating mines, shore torpedoes and submarines, will fail. The slight damage sustained by the shore batteries is illustrated by Fort Dardanes, which withstood the fire from the British ships, admittedly inferior to none in marksmanship. An interior city, with its approach channel protected with well-placed and concealed guns, equal in range to the enemy's, and provided with the accessory means of defense, need not fear capture by bombardment or a run by the forts. A fort on the seacoast proper, exposed to the fire from ships at sea, must have guns of greater range than the ships' guns; otherwise the ships could silence the guns on shore at their pleasure, and under their fire could land troops to complete the destruction of the forts.

Concealment and dispersion are also necessary. The aeroplane observation of fire by the allies does not seem to have been very efficient, but this can not always be relied on, and concealment from aerial observation should be obtained. Without such observation, long-range indirect bombardment is worthless. By taking advantage of the terrain and resorting to dispersion, the amount of concrete might be reduced, and the money thus saved put into more guns.

NECESSITY FOR MOBILE TROOPS.

The power of coast fortifications, to repel a direct attack by an enemy fleet, is limited to the area within range of their guns, but their influence is extended considerably further whenever they cover a base from which submarines operate. These fortifications must therefore be recognized as of supreme importance within the scope of their proper functions, and this is especially true of a country possessing an enormous frontage on two oceans. Their paramount value is that they relieve the navy of the local defense of important harbors or other strategic points and thus release our seagoing fleet for operations against the enemy on the high seas, and furnish a refuge for it in the face of overpowering odds. But beyond the sphere of influence of our seacoast forts, enemy ships may approach the shore with impunity and, under the cover of their guns, may land troops that can then proceed against the important places defended by the forts or even against the forts themselves, since they are vulnerable from the land side. With our long coast lines, the guarding of every possible landing place by seacoast fortifications is out of the question, and, although the development and employment of heavy mobile seacoast armament along our coastal railroads will further restrict the landing places open to an enemy, there will still remain many places affording facilities for landing operations which can only be opposed by mobile troops acting without the cooperation of Coast Artillery. For these reasons it is evident that there must also be available a mobile force properly trained, organized and equipped, to send against the enemy at the landing and defeat them there, or at least prevent his advance toward his objective, should a landing be effected. Until we have adequately provided for this dual defense of our coasts, having full regard to both fixed defenses and mobile troops, our Navy will never be free to perform its primary function, but will be frittered away in response to clamor for protection from our coast population.

An illustration of the value of mobile troops in coast defense is afforded by the operations at the Dardanelles, described in the last subhead under paragraph 3, page 12, of this study.

3. SUMMARY OF ATTEMPT TO TAKE DARDANELLES FORTIFICATIONS BY MOBILE TROOPS.

INITIAL DELAY.

Before the attack of March 18 it had been decided to undertake operations by land at the Dardanelles. An official French note stated on the 12th that a force was on its way to the Levant, and Gen. Ian Hamilton was appointed commander of the British force and arrived in time to witness the action of the 18th. Both the
and British forces had arrived in the harbor of Mudros on
of Lemnos, west of the Dardanelles; but as the British
ad not been loaded with a view to make a landing in
the shore and the lack of facilities in Mudros made

redistribution impossible there, they had to be sent back to Alexandria for reloading. A month was lost, which it is safe to say was well employed by the Turks.

TERRAIN.

The Gallipoli Peninsula is covered by hills which rise to a height of 1,000 feet; on the southern end Achi Baba, 600 feet high, dominates the end of the peninsula; just west of the Narrows, Kilid Bahr, 700 feet high, covers the forts from an attack from the Aegean; and northwest of the Narrows, Sari Bair Mountain reaches a height of 970 feet. These hills must be taken before an advance can be made to the shores of the Narrows. The hills do not run in a regular or well-defined direction, and between the hills there are a confusing number of valleys. The area is practically roadless and most of it covered with prickly scrub. The sides of the hills are almost vertical. At the water's edge there is generally a narrow beach with a steep bank 10 feet high, and then the rolling hills with their crests 1,000 yards from the beach. Every trail leading to the beach was covered with one or more machine guns in screened pits, and the roads were covered with field guns in groups of from three to six.

STRENGTH OF FORCES.

The British force consisted of the Twenty-ninth (Regular) Division, the East Lancashire (Territorial) Division, a naval division of bluejackets and marines, some Indian troops, and the Australian and New Zealand Corps, with 20 battalions of infantry, together with artillery and engineers. The strength was approximately 100,000. The territorials and colonial troops had been wintering in Egypt. The French force was about 35,000. The Turks were in greater force and better posted than was expected; the number on the European side has been given as over 150,000. Besides, they were supported by the Germans.

ALLIES' PLAN.

The coast being precipitous, landing places few, and trenches and entanglements being visible on shipboard at most of them, Gen. Hamilton decided to throw the whole of his troops very rapidly ashore at a number of places, and selected five beaches at the tip of the peninsula and two on the west coast, near Sari Bair Mountain, as landing places. He could thus advance up the peninsula or cross it where it was about five miles wide, and obtaining possession of the high hills, secure observation points whereby the navy could assist in the reduction of the forts.

LANDINGS AT SOUTH END OF PENINSULA.

April 25 was the date of the landing. The Twenty-ninth Division, 20,000 men, was to land at the end of the peninsula at the five beaches, the three at the tip, near Sedd-el-Bahr, being the main ones. At the other two places, the landing was to take place at dawn, while at the main places the landings were to be simultaneously at 5.30 a. m., after half an hour's bombardment by the fleet. The landing parties, covering the advance of the division, were placed on naval vessels the previous day and before dawn on the 25th were in the small boats in which they were to be towed ashore. The accompanying squadron of four battleships and four cruisers began the preliminary bombardment. At S beach, in Morto Bay, the farthest to the east, three companies (750 men) made a successful landing, with a loss of 50 men, and kept the position. On Y beach, the westernmost landing, two battalions (2,000 men) landed on an undefended beach, but were subsequently attacked and driven to the boats with heavy losses. On X beach, 3 miles south of Y beach, 1 battalion (1,000 men) made a successful landing, under cover of the fire of the *Implacable*, which stood close inshore, firing with every possible gun, thus preparing the way for a subsequent force of 2,000 men, which joined hands with the force landing at W beach, the next to the south. On W beach, 1 battalion (1,000 men) landed on a beach 350 yards long and 15 to 40 yards wide, well protected with intrenchments and entanglements, the latter extending under water. The Turks reserved their fire until the first boatload of soldiers grounded, and under this fire the assailants had to make their way through the entanglement. A foothold was gained and, more infantry following, connection was made with X beach. At V beach, west of Sedd-el-Bahr, the site of the seacoast forts that had previously been reduced by the navy, a force of about 3,000 attempted to land on a beach 350 yards long by 10 yards wide, overlooked by a natural amphitheater rising back from the beach, with concave slopes. On the very margin of the beach ran a wire entanglement and up the slopes were two other lines, the whole covered with fire of rifles, machine guns, and pom-poms. Three companies [illegible] men), landing in small boats, were almost annihilated, the survivors obtaining shelter under the lee of a low sandy bank 4 feet high, at the inner edge of the beach; the boat crews were all [illegible]. It was intended to land 2,000 men from a collier, the *Clyde*, [illegible] to be run ashore and lighters used to form a gangway [illegible] and shore. The attempt failed: of 1,000 men who left [illegible] were kill or wounded. Nothing could be [illegible] when the remainder of the infantry from the [illegible] On the 26th, under cover of the fire from the ships, the troops established themselves on the crests of the surrounding hills. During the night of the 25th, the disembarkation of the remainder of the Twenty-ninth Division was proceeding on W and X beaches.

LANDING BY THE AUSTRALIAN-NEW ZEALAND CORPS.

This corps of 35,000 men landed north of Gaba Tepe, near the foot of Sari Bair Mountain. This rugged and difficult part of the coast was chosen because it was believed it would be undefended. The landing was to be a surprise and the preliminary bombardment was omitted. The covering force of 4,000 men in ships' boats was towed by destroyers to within 500 yards from the beach, which was 1,000 yards long, when the destroyers dropped behind and steam launches towed the boats in. In the darkness the boats were close to the shore before they were discovered. About a battalion of Turks disputed the landing, but they were driven back. The main body came up in the transports and by 2 p. m. 12,000 men and two batteries of mountain artillery were ashore. The Turks promptly rallied and reinforced to 20,000 by 11 a. m., made counter attacks. These counter attacks continued for several days, but with the assistance of the ships' fire the British maintained their position. On this first day—April 25—29,000 men were landed.

DIVERSION BY THE FRENCH.

As a diversion to draw the fire of the Asiatic guns from Sedd-el-Bahr, a regiment of the French corps landed at Kum Kale on the Asiatic shore on the 25th, but on the 26th they reembarked, after a loss of 754, one-fourth of its effective strength, and the French corps began landing at V Beach.

ATTEMPTS TO ADVANCE.

On April 28 the allies held a line across the peninsula, three miles north of Sedd-el-Bahr, and an attempt was made to capture the hill of Achi Baba, which failed. The troops landing on the west coast also tried to advance, but were held to a semicircle 1,100 yards in diameter from the beach. Here they were holding open a door to the vital point of the Turkish position and were keeping 24,000 of the best Turkish troops out of the main action around Sedd-el-Bahr. By May 5 the landing of the allies was completed. The British official report gives the losses among the British at this time as 602 officers and 13,377 men, which is about 13.5 per cent of the total estimated force of 100,000. It is estimated that the Turks lost 18,000 in the operations of April 25–27.

May 5 a general advance was attempted against the town of Krithia and the hill of Achi Baba, but the attack was unsuccessful. May 18 the Turks, estimated at 30,000, attacked the force at Anzac Cove (the name given to the landing place of the Australian-New Zealand Corps, themselves termed "Anzacs"), and were repulsed with a loss of 7,000, the Anzacs losing 500. To May 31 the British losses were 38,636 (1,722 being officers), the French about 5,000, and the Turkish estimated at 60,000. The total battle losses of the British in the three years of the Boer War were 38,156. According to a Turkish report at this date the number of British and French troops amounted to 90,000. The Turks had received 60,000 reenforcements.

June 4 there was another general attack by the allies from Sedd-el-Bahr; on the right there were two French divisions, the rest of the line, 4,000 yards, being held by 24,000 British infantry. The net result was a gain of 200 to 400 yards along a front of three miles. The line then held extended from south of Krithia southeast across the peninsula, about 4 miles from Sedd-el-Bahr. The appearance of German submarines caused the withdrawal to Mudros Harbor of the transports and the sending of supplies in small boats. The Turks under Enver Pasha made a general attack in the vicinity of Krithia June 30–July 2, but accomplished little, with a loss of 5,150 killed and 15,000 wounded. To July 18, the British losses were 49,283, 2,144 being officers.

LANDING AT SUVLA BAY AND SUBSEQUENT OPERATIONS.

August 7 another landing was made at Suvla Bay, 4 miles north of Anzac Cove. The landing began at 2 a. m. on three beaches and by day a force of two divisions was firmly established. The Anzac force joined in the attack, the intention being to connect the two forces and capture the Sari Bair Ridge. The attack from Anzac was carried to the summit of the ridge, but as the Turks had been heavily reenforced, the attack from Suvla Bay did not make the expected progress, and the line had to fall back. The two forces were finally joined on a line 12 miles long. The number of men landing at Suvla Bay is not known; the British speak of it as a fresh army and the Turks estimated it as 70,000. The British losses were heavy; according to the Turks, 30,000.

According to a German estimate, on August 30 the allies had from [illegible],000 troops at Sedd-el-Bahr, of whom 9,000 were French, [illegible] left of the original 35,000; 9,000 at Anzac Cove, and [illegible] Bay. These numbers were not materially increased [illegible] though the losses in the trench warfare since then [illegible] casualties on November 9 to 106,610 among the [illegible] ish losses are unknown. On December 20 it was

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